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BHCTP Monthly Discharge Monitoring Report

Month:	July-18		
Facility:	Central Treatment Plant		
Location:	Bunker Hill Superfund Site		
Contract Number:	W912DW-16-C-0012	Wood.	
Total Flow For The Month From 006 Outfall:		62,875,800	gallons estimated
Sludge pumping to CIA sludge pond:		2,040,000	gallons estimated
Clarifier Water Used by Water Trucks		976,000	gallons estimated
Total Flow From Kellogg Tunnel:		64,851,480	gallons

Percent of Influent Successfully Treated: 100.0%

13 sample days * 6 parameters (Pb, Cd, Zn, Mn, TSS & pH) = 78 potential exceedances
78 - 0 exceedances = 78 78/78 = 100%

Results of Sampling Efforts:

All sampling has been performed in accordance with specifications and the Sampling and Analysis Plan.

Performance Evaluation (PE) sampling was not performed for this reporting period.

Trip blank and rinsate sampling was performed, with the results being reported on the 'PTM-004,RB,TB' page of this DMR.

Highlights of Plant Maintenance and/or Plant Optimization:

07-01-18 Performed monthly fire extinguisher inspection. All CTP fire extinguishers are fully charged and in good working condition at this time.

07-01-18 Performed monthly pump and motor inspection. All CTP pumps and motors are in good condition at this time.

07-02-18 Operators received Temporary Treatment System hazard awareness and operations overview training.

07-02-18 Sears Fire Extinguisher Company performed the annual CTP fire extinguisher inspection and refilling. All CTP fire extinguishers are verified to be in good working condition at this time.

07-02-18 Balancing Services Inc. performed the 6 month pump & motor preventative maintenance inspection. All CTP pumps and motors are in good working condition at this time with no issues to report.

07-09-18 McCunes Instruments performed the KT flow meter and Orion pH meter calibration certifications. Both meters are certified to be calibrated to manufactures specifications. Certification credentials will be maintained at the CTP control room.

07-10-18 Operators performed the monthly no load emergency generator run test. The emergency generator operated for one half hour as programmed with no issues or errors to report.

07-10-18 Operators replaced the failed section of lime slurry discharge pipe on the lime slurry pump #2. The replacement section of piping is constructed of schedule 80 material. The failed section was schedule 40 material.

07-10-18 Placed lime silo B in standby mode and placed lime silo A in service as the primary lime silo and lime slaker.

07-11-18 CTP operators installed a pump and discharge line in the polishing pond. Operators drained the standing water from the polishing pond into the aeration basin.

07-24-18 Bunker Hill Mine performed an in mine diversion excursive. 11:30 KT flow was diverted within the mine. 13:30 the mine operator provided notification that the water was being released. 16:30 the CTP operator stabilized the process pH at 8.40. Operator overtime was accumulated for the mine flow diversion activity.

07-24-18 Operators performed the monthly full load emergency generator run test. The emergency generator operated all CTP components for one hour as programmed with no issues or errors to report.

07-25-18 Process pH set point was reduced to 8.30 from 8.40; treated discharge zinc average for the month has decreased to .273 mg/L.

07-30-18 Placed lime silo A and slaker A in standby mode. Silo A lime depth indicator is not reading accurately
Placed lime silo B and slaker B in service as the primary lime slaking system. Silo B lime depth indicator is now at 10'

07-31-18 Performed the monthly Kellogg Tunnel flow meter reset and total flow documentation.
The CTP treated outfall flow continues to be estimated as the meter remains in fail mode at this time.

- The Kellogg Tunnel discharge flow decreased by 6% from July 2017, from 69.4 mg to 64.8 mg.

- The Kellogg Tunnel zinc concentration increased by 3.1% from July 2017, from an average of 97 mg/L to 100 mg/L.

- The CTP operating pH set point was decreased from 8.4 to 8.3 during this reporting period.

- The flocculent dosage remained at approximately 1.5 PPM during this reporting period.

- The CTP sludge recycle rate remained at 400 gpm.

- CTP operators received no off-shift auto dialer call-out alarms.

- CTP operators performed no lined storage pond pumping events.

- CTP operators verified Aeration Basin pH probe and grab sample values periodically each day.

Lessons Learned:
No significant lessons learned during this reporting period.

MONITORING PERIOD					
YEAR	MO	DAY	YEAR	MO	DAY
2018	7	1	2018	7	31

PARAMETER		Quantity or Loading			Quality or Concentration					
		MONTHLY AVERAGE	DAILY MAXIMUM	UNITS	MINIMUM	MONTHLY AVERAGE	DAILY MAXIMUM	UNITS	FREQUENCY OF ANALYSIS	SAMPLE TYPE
pH	Sample Measurement				6.70		7.40		Continuous	Meter
	Permit Required				6.0		10.0			
Flow Thru Treatment Plant	Sample Measurement	2.03	2.52	mgd						
	Permit Required		Daily							
Lead Total - Pb Effluent	Sample Measurement	0.05	0.09	lbs/day		0.003	0.004	mg/L	three samples/ week	Comp 24
	Permit Required	14.8	37.0			0.30	0.60	mg/L		
Zinc Total - Zn Effluent	Sample Measurement	4.54	7.02	lbs/day		0.26	0.34	mg/L	three samples/ week	Comp 24
	Permit Required	36.2	91.3			0.73	1.48	mg/L		
Cadmium - Cd Effluent	Sample Measurement	0.09	0.185	lbs/day		0.005	0.009	mg/L	three samples/ week	Comp 24
	Permit Required	2.40	6.10			0.050	0.100	mg/L		
Manganese - Mn Effluent	Sample Measurement	204	417	lbs/day		11.8	20.8	mg/L	three samples/ week	Comp 24
	No Permit Required					N/A	N/A	mg/L		
Total Suspended Solids - TSS	Sample Measurement	19.0	35	lbs/day		1.2	1.8	mg/L	three samples/ week	Comp 24
	Permit Required	985	1907			20	30	mg/L		

PREPARED BY: GARY FULTON

REVIEWED BY: KESTIN SCHULZ

NPDES DISCHARGE POINT 006
CENTRAL TREATMENT PLANT
MONTH: Jul-18

DAY	LEAD (Pb)		ZINC (Zn)		CADMIUM (Cd)		MANGANESE (Mn)		pH	FLOW	TSS		LOADING
	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day		mgd	mg/L	lbs/day	kg/day
1		0.086		5.15		0.02		275		2.52		29.4	13.3
2	0.004	0.081	0.245	4.85	0.001	0.02	13.10	259	6.90	2.37	1.4	27.7	12.6
3		0.048		2.88		0.01		154		1.41		16.5	7.5
4	0.003	0.033	0.260	2.54	0.001	0.01	6.65	65	6.90	1.17	1.8	17.6	8.0
5		0.061		4.64		0.01		118.8		2.14		32.1	14.6
6	0.003	0.052	0.336	7.02	0.008	0.16	10.30	215.3	6.80	2.51	0.1	2.1	0.95
7		0.050		6.66		0.15		204.2		2.38		2.0	0.90
8		0.049		6.61		0.15		202.7		2.36		2.0	0.9
9	0.003	0.067	0.299	5.93	0.006	0.12	15.50	307	6.80	2.38	1.6	31.7	14.4
10		0.068		6.00		0.12		311.0		2.40		32.1	14.6
11	0.004	0.072	0.288	5.78	0.001	0.02	20.80	417.3	6.80	2.40	0.4	8.0	3.64
12		0.037		3.0		0.01		214.2		1.23		4.1	1.87
13	0.003	0.022	0.245	2.14	0.008	0.07	17.50	153	6.70	1.05	1.2	10.5	4.75
14		0.045		4.42		0.15		315		2.16		21.6	9.81
15		0.050		4.92		0.16		351		2.40		24.1	10.9
16	0.003	0.050	0.249	5.03	0.008	0.16	13.60	275	6.70	2.42	0.6	12.1	5.49
17		0.050		5.03		0.16		275		2.42		12.1	5.49
18	0.003	0.057	0.237	4.78	0.005	0.10	12.80	258	6.70	2.42	1.0	20.2	9.15
19		0.030		2.52		0.05		136		1.27		10.6	4.81
20	0.003	0.028	0.229	2.25	0.001	0.01	9.03	89	6.80	1.18	1.4	13.8	6.24
21		0.028		2.25		0.01		89		1.18		13.8	6.25
22		0.027		2.21		0.01		87		1.16		13.5	6.14
23	0.003	0.024	0.337	3.26	0.006	0.06	2.95	28.5	6.70	1.16	1.4	13.5	6.14
24		0.043		5.79		0.11		51		2.06		24.1	10.9
25	0.003	0.048	0.216	4.18	0.007	0.14	6.47	125	7.40	2.32	1.8	34.8	15.8
26		0.048		5.28		0.18		164		2.32		27.1	12.3
27	0.003	0.050	0.273	5.46	0.009	0.18	8.50	170	6.70	2.40	1.4	28.0	12.7
28		0.051		5.54		0.18		172		2.43		28.4	12.9
29		0.051		5.54		0.18		172		2.43		28.4	12.9
30	0.003	0.051	0.224	4.54	0.005	0.09	16.70	339	6.80	2.43	1.2	24.3	11.0
31		0.050		4.51		0.09		336		2.41		24.2	11.0
Total	0.038	1.508	3.438	140.666	0.065	2.879	153.900	6330.319	88.700	62.876	15.300	590.388	267.749
Sample Events	13	31	13	31	13	31	13	31	13	31	13	31	31
Daily Average	0.003	0.049	0.264	4.54	0.005	0.093	11.8	204	6.82	2.03	1.18	19.0	8.64
Lab Detection Limit	**0.0025**		**0.003**		**0.0008**		**0.0017**		**0.01**		**0.080**		

MIN	0.003	0.022	0.216	2.141	0.001	0.008	2.950	28.532	6.700	1.047	0.100	1.968	0.892
MAX	0.004	0.086	0.337	7.024	0.009	0.185	20.800	417.277	7.400	2.517	1.800	34.834	15.798

Notes:
(X mg/L) * (1 kg/10^6 mg) * (2.205 lbs/kg) * (3.785 L/gal) * (10^6 gal/Mgal) * (Y Mgal/day) = (X) * (Y) * (8.345) in lbs/day
(X lbs/day) * (1 kg/2.205 lbs) = (X) / (2.205) in kg/day

KELLOGG TUNNEL DISCHARGE
CENTRAL TREATMENT PLANT
MONTH: Jul-18
Data from SVL

DAY	LEAD (Pb)		ZINC (Zn)		CADMIUM (Cd)		MANGANESE (Mn)		pH	006 FLOW	TSS		
	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day		mgd	mg/L	lbs/day	kg/day
1		11.95		1,775		3.19		2,056		2.52		2,605	1,181
2	0.556	11.00	42	821	0.218	4.31	39	765	2.90	2.37	13	247	112
3		6.54		488		2.57		455		1.41		147	67
4		5.43		405		2.13		378		1.17		122	55
5	0.561	10.02	40	714	0.204	3.64	39	704	2.90	2.14	11	203.6	92.3
6		11.73		836		4.26		824		2.51		238	108
7		11.12		793		4.04		781		2.38		226	103
8		11.04		787		4.01		775		2.36		224	102
9	0.539	10.69	98	1,941	0.188	3.73	102	2,022	2.90	2.38	137	2,716	1,232
10		10.81		1,964		3.77		2,046		2.40		2,748	1,246
11		10.81		1,964		3.77		2,046		2.40		2,748	1,246
12	0.597	6.15	154	1,586	0.371	3.82	43	440	2.80	1.23	38	391	177
13		5.22		1,346		3.24		373		1.05		332	151
14		10.76		2,776		6.69		770		2.16		685	311
15		11.98		3,090		7.45		857		2.40		763	346
16	0.568	11.47	96	1,936	0.191	3.86	96	1,934	3.00	2.42	121	2,443	1,108
17		11.47		1,936		3.86		1,934		2.42		2,443	1,108
18		11.47		1,936		3.86		1,934		2.42		2,443	1,108
19	0.686	7.28	159	1,688	0.366	3.89	43	457	2.80	1.27	33	350	159
20		6.74		1,562		3.59		423		1.18		324	147
21		6.76		1,566		3.60		424		1.18		325	147
22		6.63		1,538		3.54		417		1.16		319	145
23	0.609	5.89	150	1,451	0.337	3.26	42	403	2.80	1.16	35	339	154
24		10.98		2,704		6.07		752		2.16		631	286
25		11.98		2,952		6.63		821		2.36		689	312
26	0.569	11.11	85	1,650	0.152	2.97	98	1,912	3.00	2.34	124	2,421	1,098
27		11.95		1,775		3.19		2,056		2.52		2,605	1,181
28		11.78		1,749		3.15		2,027		2.48		2,567	1,164
29		11.20		1,663		2.99		1,926		2.36		2,440	1,107
30	0.533	10.41	80	1,556	0.145	2.83	94	1,826	3.00	2.34	135	2,636	1,196
31		11.20		1,674		3.05		1,964		2.52		2,836	1,286
Total	5.22	303.55	902.50	50621.12	2.17	120.96	594.80	36503.35	26.10	63.15	646.90	40206.60	18234.29
Sample Events	9	31	9	31	9	31	9	31	9	31	9	31	31
Daily Average	0.580	9.8	100.3	1,633	0.241	3.90	66.1	1,178	2.90	2.04	72	1297	588

Notes:
(X mg/L) * (1 kg/10^6 mg) * (2.205 lbs/kg) * (3.785 L/gal) * (10^6 gal/Mgal) * (Y Mgal/day) = (X) * (Y) * (8.345) lbs/day
(X lbs/day) * (1 kg/2.205 lbs) = (X) / (2.205) kg/day

PTM Effluent at Lined Storage Pond **Month: Jul-18**
CENTRAL TREATMENT PLANT

DATE	LEAD mg/L	ZINC mg/L	CADMIUM mg/L	pH s.u. CTP Lab	TSS mg/L
07/05/18	0.0081	11.0	1.35	6.70	0.0
07/19/18	0.0098	11.5	1.38	6.60	0.6

RINSATE AND TRIP BLANKS **Month: Jul-18**
CENTRAL TREATMENT PLANT

Rinsate and Trip Blank samples will be taken approximately every 20 QC events, or one each per month.

LOCATION Rinsate & Trip Blank	DATE	SAMPLE	LEAD mg/L	ZINC mg/L	CADMIUM mg/L
PTM Discharge		RB-07-4-18	<0.008	<0.010	<0.002
Trip Blank (D.I.water)		TB-07-4-18	<0.008	<0.010	<0.002

verified by Kestin Schulz 8/21/2018

Bunker Hill Central Treatment Plant

Daily log July 2018

				AERATION BASIN					CLARIFIER						CLARIFIER TROUGH -for- DISCHARGE 006									RECYCLE SG		LIME SLURRY			SLUDGE PUMP		POND PUMP		SLUDGE GUN TEST		LINED POND
		INFLUENT KT			a.m.		p.m.		a.m.		p.m.				pH a.m.		pH p.m.		Turbidity		Est	DO	1/wk *c					Injection Valve	Est.	600gpm					ESTIMATED
DATE	Operators	GPM	pH	SET	pH1	grab	pH1	grab	pH2	grab	pH2	grab	TURB	TEMP	Mtr	grab	Mtr	grab	Meter	Grab	Flow	PPM	TEMP	SG	GPM	SG	%solid	Closed/Open	pump #	min	ON	OFF	10' Out	20' Out	Elevation (mg)
7/1	SB			8.4	8.4	8.4	8.4	8.4	8.1	8.0	8.0	8.1	0.71	57	8.1	7.9	8.1	8.0	0.90	0.78	2.52			1.052	**400**	1.070	10.8	157/52	3	120					2268.5 (0.75mg)
7/2	GF,SB	1700	2.84	8.4	8.4	8.4	8.6	8.6	8.0	8.0	8.0	8.0	0.60	59	8.1	8.0	7.9	7.9	0.90	0.70	2.37			1.056	**400**	1.071	11.0	160/52	3	120					2268.5
7/3	GF,SB,GC			**8.5**	8.5	8.5	8.5	8.5	8.2	8.1	8.0	8.0	0.61	53	8.1	8.1	8.0	7.9	1.10	0.71	1.41			1.037	**400**	1.073	11.3	240/38	3	30					2268.5
7/4	GC			**8.5**	8.5	8.6	8.4	8.4	8.1	7.9	7.9	7.9	0.62	61	8.1	7.8	8.0	7.7	0.90	0.78	1.17	8.7	8.60	1.053	**400**	1.072	11.1	247/38	3	120					2268.5
7/5	GC, SB	1791	2.90	8.4	8.4	8.3	8.4	8.3	8.0	7.9	8.0	8.0	0.62	55	8.0	7.8	7.9	8.0	0.90	0.75	2.14			1.053	**400**	1.071	11.0	167/52	3	120					2268.5
7/6	GF			8.4	8.4	8.4	8.3	8.3	7.9	8.1	7.9	8.0	0.75	60	8.0	8.0	7.9	7.9	0.90	0.90	2.51			1.053	**400**	1.072	11.1	162/52	3	120					2268.5
7/7	GF,SB			8.4	8.4	8.4	8.4	8.4	7.9	8.1	8.0	8.0	0.65	59	8.0	8.0	8.0	8.0	1.00	0.72	2.38			1.064	**400**	1.073	11.3	158/55	3	150					2268.5
7/8	SB			8.4	8.5	8.5	8.4	8.4	8.0	8.1	8.0	8.1	0.73	56	8.0	8.1	8.0	8.1	0.90	0.81	2.36			1.054	**400**	1.073	11.3	116/55	3	120					2268.5
7/9	GF,SB	1722	2.93	8.4	8.4	8.4	8.5	8.5	7.9	7.9	7.9	7.9	0.80	59	8.0	7.8	7.9	7.8	0.90	0.90	2.38			1.055	**400**	1.073	11.3	132/55	3	120					2268.5
7/10	GF,SB,GC			8.4	8.6	8.5	8.3	8.3	7.9	8.0	8.0	8.1	0.78	61	7.9	8.0	8.0	8.0	0.90	0.81	2.40			1.053	**400**	1.071	11.0	126/55	3	120					2268.5
7/11	GF,SB,GC			8.4	8.3	8.3	8.4	8.4	7.9	7.9	8.0	7.9	0.80	61	7.9	7.9	7.9	7.6	0.90	0.90	2.40	9.2	8.36	1.054	**400**	1.071	11.0	175/55	3	120					2268.5
7/12	GF,SB,GC	850		**8.5**	8.5	8.5	8.5	8.5	7.8	7.8	8.0	7.8	0.73	60	6.8	7.6	7.8	7.7	0.90	0.76	1.23			1.038	**400**	1.071	11.0	322/35	3	40					2268.5
7/13	GF,GC			**8.5**	8.5	8.5	8.5	8.4	7.8	7.9	7.9	7.9	0.75	59	7.8	7.8	7.9	7.8	0.90	0.85	1.05			1.039	**400**	1.073	11.3	274/30	3	90					2268.5
7/14	GC			8.4	8.4	8.4	8.4	8.4	8.0	7.8	7.9	7.8	0.74	60	7.1	7.6	7.3	7.6	0.90	0.76	2.16			1.057	**400**	1.073	11.3	260/50	3	120					2268.5
7/15	SB			8.4	8.4	8.4	8.5	8.5	8.0	8.0	7.9	8.0	0.77	60	7.7	7.9	7.7	7.8	0.90	0.80	2.40			1.052	**400**	1.073	11.3	282/50	3	120					2268.5
7/16	GF,SB	1730	2.95	8.4	8.4	8.4	8.5	8.5	8.1	8.1	8.1	8.1	0.80	61	8.1	8.0	7.9	8.0	0.90	0.90	2.42			1.057	**400**	1.073	11.3	385/50	3	120					2268.5
7/17	GF,SB,GC			8.4	8.4	8.4	8.4	8.3	8.0	8.0	8.1	8.0	0.80	62	7.9	8.8	7.9	7.8	0.90	0.80	2.42			1.056	**400**	1.071	11.0	269/48	3	120					2269.0 (1.0 mg)
7/18	GF,SB,GC			8.4	8.4	8.4	8.5	8.4	7.9	8.0	8.0	7.9	0.80	62	7.9	7.9	7.9	7.9	0.90	0.90	2.42	8.70	9.00	1.068	**400**	1.070	10.8	237/52	3	150					2269.0
7/19	GF,SB,GC	826	2.81	8.4	8.5	8.4	8.6	8.5	7.9	8.0	7.9	7.9	0.72	60	6.4	7.9	8.1	7.9	0.90	0.66	1.27			1.036	**400**	1.071	11.0	283/30	3	30					2269.0
7/20	GF,GC			**8.5**	8.6	8.5	8.5	8.5	8.0	8.1	8.0	8.1	0.70	59	8.6	8.0	8.6	8.0	0.90	0.80	1.18			1.042	**400**	1.070	10.8	334/30	3	60					2269.0
7/21	GC			**8.5**	8.6	8.6	8.5	8.5	7.9	7.8	7.9	7.9	0.67	60	8.2	7.6	8.0	7.8	0.80	0.70	1.18			1.042	**400**	1.069	10.7	292/30	3	60					2269.0
7/22	SB			**8.5**	8.6	8.5	8.5	8.4	7.8	8.1	7.8	8.1	0.66	59	8.2	8.1	8.2	7.8	0.80	0.73	1.16			1.041	**400**	1.071	11.0	307/29	3	60					2269.0
7/23	GF,SB	830	2.85	**8.5**	8.4	8.4	8.4	8.4	7.9	8.1	7.9	8.0	0.60	59	8.2	8.0	7.9	7.9	0.80	0.70	1.16			1.040	**400**	1.072	11.1	180/29	3	120					2269.0
7/24	GF,SB,GC			8.4	8.3	8.3	8.5	8.5	8.0	8.0	8.0	8.0	0.60	61	8.0	7.9	8.0	7.9	0.90	0.70	2.06			1.052	**400**	1.072	11.1	224/52	3	120					2269.0
7/25	GF,SB,GC			**8.3**	8.4	8.4	8.4	8.4	8.0	8.0	8.2	8.1	0.60	62	7.9	8.0	8.1	7.9	0.90	0.70	2.32	7.81	17.10	1.055	**400**	1.074	11.4	208/52	3	120					2269.0
7/26	GF,SB,GC	1740	2.91	**8.3**	8.3	8.3	8.3	8.3	8.0	8.1	8.1	7.7	0.51	60	8.0	8.1	8.0	7.5	0.80	0.56	2.32			1.064	**400**	1.072	11.1	220/52	3	210					2269.0
7/27	GF,GC			**8.3**	8.3	8.3	8.2	8.2	8.0	8.0	8.0	8.0	0.60	61	8.0	7.9	7.9	7.9	0.80	0.70	2.40			1.053	**400**	1.070	10.8	241/52	3	120					2269.0
7/28	GC			**8.3**	8.3	8.2	8.3	8.3	8.0	7.9	8.1	7.9	0.63	60	8.1	7.8	8.0	7.9	0.80	0.72	2.43			1.053	**400**	1.068	10.5	115/65	3	120					2269.0
7/29	GF			**8.3**	8.3	8.3	8.3	8.3	8.0	7.9	8.0	8.0	0.70	61	8.0	7.9	7.8	7.8	0.80	0.70	2.43			1.050	**400**	1.068	10.5	172/55	3	120					2269.0
7/30	GF,SB	1725	2.93	**8.3**	8.3	8.3	8.2	8.2	8.0	8.0	7.9	8.0	0.70	61	8.1	8.0	7.9	8.0	0.80	0.70	2.43			1.055	**400**	1.067	10.4	175/55	3	120					2269.0
7/31	GF,SB,GC			**8.3**	8.3	8.3	8.3	8.3	7.8	8.0	8.0	8.0	0.83	61	5.6	7.9	5.6	7.9	0.80	0.78	2.41			1.056	**400**	1.064	10.0	155/55	3	120					2269.0 (1.0 mg)
Averages:				8.40	8.4	8.40	8.41	8.40	7.95	7.98	7.97	7.97	0.70	60	7.82	7.93	7.87	7.86			2.03			1.051						110					
Notes:																													3400					
																													2,040,000	Gallons				
	07-02-18 11:30 KT flow decreased from 1700 gpm to approximately 830 gpm. Ph set point increased to 8.50 from 8.40.																																	
	07-04-18 10:30 KT flow increased from approximately 830 gpm to 1700 gpm. PH set point was decreased from 8.5 to 8.4																																	
	07-10-18 06:00 Performed six month change over from slaker B to A, and lime slurry pump #2 to #1.																																	
	07-11-18 10:30 KT flow decreased from approximately 1720 gpm to 720 gpm. PH set point was increased from 8.4 to 8.5																																	
	07-13-18 11:00 KT flow increased from approximately 850 gpm to 1720 gpm.																																	
	07-18-18 11:30 KT flow decreased from 1730 gpm to approximately 830 gpm. PH set point was increased from 8.4 to 8.5																																	
	07-23-18 09:30 KT flow increased from approximately 830 gpm to 1720 gpm.																																	
	07-25-18 pH set point decreased from 8.40 to 8.30. Treated outfall zinc averages are .288 mg/L and near excellent.																																	
	07-28-18 07:30 Switched from lime injection pump #1 to #2 for valve and piping installation.																																	

CENTRAL TREATMENT PLANT **MISCELLANEOUS FLOWS**

Month : **Jul-18**

Date	**KT Flow Meter Reading**
6/30/2018	0
7/31/2018	64,851,480
Total	64,851,480

Date	**Treated Outfall Flow**	
6/30/2018	0	
7/31/2018	62,875,800	estimated flow based on KT flow and
Total	62,875,800	dedcucting daily sludge pumping

Lined Storage Pond Influent Flows

Sweeny Pump Station Reading

Date	#1 Pump	620 gpm	#2 Pump	500 gpm
6/30/2018	170.0	Hours	785.0	Hours
7/31/2018	170.0	Hours	785.0	Hours
Total Hours	0.0	Hours	0.0	Hours
Total Flow for 004/Sweeny For The Month =			0	Gallons

PTM Discharge Flow

Date	Flow (gpm)
07/05/18	9.0
07/19/18	7.5

Date	**Lined Storage Pond Water Level**			
6/30/2018	750,000	gal	Elev. =	2268.5
7/31/2018	1,000,000	gal	Elev. =	2269.0

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Old Mine Line Discharge Flow

Date	Flow (gpm)
NA	NA

JANUARY 2018 - DECEMBER 2018 BHCTP LIME USAGE AFW/WOOD

	Silo A						Silo B						Total	
Month	Initial Level	Final Level	Diff. (ft)	Diff. (tons)	Tons Added	Net Tons	Initial Level	Final Level	Diff. (ft)	Diff. (tons)	Tons Added	Net Tons	Net Tons	Tons/Day
Jan 1 - Jan 31	11.70	13.30	-1.6	-8.6	72.20	63.6	16.30	16.30	0.0	0.0	0.00	0.0	63.6	2.05
Feb 1-Feb 28	13.30	15.50	-2.2	-11.9	40.50	28.6	16.30	13.80	2.5	13.5	42.10	55.6	84.2	3.01
Mar 1 - Mar 31	15.30	15.30	0.0	0.0	0.00	0.0	13.80	10.00	3.8	20.5	81.00	101.5	101.5	3.27
April 1 - April 30	15.30	15.30	0.0	0.0	0.00	0.0	10.00	13.00	-3.0	-16.2	150.70	134.5	134.5	4.48
May 1 - May 31	15.30	17.00	-1.7	-9.2	41.50	32.3	13.00	7.50	5.5	29.6	333.50	363.1	395.5	12.76
June 1 - June 30	17.00	17.00	0.0	0.0	0.00	0.0	7.50	11.00	-3.5	-18.9	152.00	133.1	133.1	4.44
July 1 - July 31	17.00	5.00	12.0	83.6	0.00	83.6	11.10	9.50	1.6	11.1	39.00	50.1	133.7	4.31
				Silo A	**154.20**					**Silo B**	**798.30**		63.6	
						Tdl Tons Purchased		**952.50**					**Average**	**4.90**

NOTES:
08-22-17 Slaker B (Silo B) removed from service, Slake A (Silo A) placed into service - Six Month Rotation- Lime loop #2 off, Lime loop #1 on
Six Month Rotation - January 1, 2018 A= 11.7 B = 16.3
01-23-18 Lime loop #1 removed from service, lime loop #2 placed into service. #1 lime loop discharge pipe found leaking, will be replaced asap.
01-24-18 Lime loop #1 repaired and placed into service as the primary lime slurry injection system. Lime loop #2 was also repaired.
02-12-18 Slaker A (Silo A) removed from service, Slake B (Silo B) placed into service - Six Month Rotation- Lime loop #1 off, Lime loop #2 on
Six Month Rotation - February 11, 2018 A= 15.0 B = 16.3
07-10-18 Slaker B (Silo B) removed from service, Slake A (Silo A) placed into service - Six Month Rotation- Lime loop #1 on, Lime loop #2 off

Lime Silo A Depth Readings

Date	Prior	After	Tons Received	Tons/ft
1/8/2018	9.9	14.4	33.70	7.49
1/29/2018	8.8	13.8	38.50	7.70
2/14/2018	9.4	15.0	40.50	7.23
1 Month Average:				**7.47**

Flocculant Received

10/19/2017	2200 lbs
12/12/2017	4400 lbs
3/19/2018	4400 lbs
6/5/2018	4400 lbs
7/10/2018	8800 lbs

Lime Silo B Depth Readings

Date	Prior	After	Tons Received	Tons/ft
2/26/2018	8.5	14.5	42.10	7.02
3/7/2018	9.8	16.4	42.50	6.44
3/19/2018	10.0	16.4	38.50	6.02
4/2/2018	9.0	14.2	35.20	6.77
4/11/2018	10.3	15.9	38.50	6.88
4/20/2018	10.1	15.7	38.50	6.88
4/30/2018	7.9	13.5	38.50	6.88
5/4/2018	8.5	13.5	38.50	7.70
5/8/2018	9.0	13.5	38.50	8.56
5/10/2018	5.2	7.7	31.10	12.44
5/11/2018	5.0	9.1	39.50	9.63
5/15/2018	3.5	10.3	38.50	5.66
5/16/2018	7.0	12.0	38.50	7.70
5/17/2018	10.7	17.0	41.50	6.59
5/18/2018	12.5	17.0	33.00	7.33
5/23/2018	7.0	12.5	38.50	7.00
5/26/2018	10.5	16.0	37.40	6.80
6/1/2018	7.5	12.8	38.50	7.26
6/7/2018	8.5	13.3	37.50	7.81
6/13/2018	10.5	16.5	39.00	6.50
6/22/2018	10.5	15.5	37.00	7.40
7/2/2018	8.9	14.5	39.00	6.96
7/10/2018				
1 Month Average:				**6.96**

KELLOGG TUNNEL ANNUAL DISCHARGE FLOWS 2000-2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Jan.	61,000,000	61,677,510	54,606,100	53,066,890	52,223,080	53,150,000	56,050,900	56,281,000	53,465,820	50,936,960
Feb.	57,600,000	45,584,000	52,840,000	46,493,470	48,306,920	49,860,000	51,188,000	50,511,300	49,282,209	48,146,111
March	60,730,000	57,740,360	50,452,060	60,162,290	59,852,720	58,073,000	56,332,830	65,443,650	54,578,130	61,712,540
April	68,680,000	54,846,000	65,583,230	63,335,350	50,715,310	53,775,350	72,039,280	66,636,500	61,690,530	63,055,350
May	**97,719,900***	57,501,901	76,082,410	63,335,350	53,245,000	54,181,650	72,027,000	63,203,308	86,680,760	70,233,580
June	69,800,000	55,835,590	67,299,960	59,532,434	50,451,170	51,750,000	68,385,600	57,981,410	82,622,590	64,623,180
July	63,698,850	53,652,330	64,820,120	66,252,746	56,538,980	55,255,000	64,054,000	58,282,900	66,324,500	61,535,000
Aug.	66,707,120	45,289,000	58,212,940	62,074,750	52,002,140	49,970,000	64,621,000	55,335,900	65,168,620	56,446,670
Sept.	55,797,530	50,276,020	60,140,460	43,789,000	49,208,020	49,987,000	54,515,270	50,471,870	61,074,020	57,006,430
Oct.	60,424,720	50,660,840	54,485,871	52,869,290	59,601,690	52,807,000	57,610,030	50,086,330	58,666,300	55,830,000
Nov.	53,408,660	50,660,840	51,072,259	47,600,000	51,948,000	50,722,600	55,191,700	50,779,040	52,041,780	54,956,800
Dec.	56,414,870	53,464,780	56,034,000	56,413,080	56,770,000	54,904,400	60,486,900	53,716,210	55,727,260	54,542,700
Totals	674,261,750	637,189,171	711,629,410	674,924,650	640,863,030	634,436,000	732,502,510	678,729,418	747,322,519	699,025,321

KELLOGG TUNNEL ANNUAL DISCHARGE FLOWS 2010-2019

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Jan.	55,503,180	61,797,170	58,434,610	**61,855,400**	57,478,450	58,440,540	52,196,750	49,352,650	56,555,500	
Feb.	50,819,910	54,556,227	57,763,170	59,383,290	54,607,950	59,767,470	53,694,400	53,675,440	**61,451,600**	
March	54,691,420	61,373,630	67,236,650	66,264,780	65,396,350	64,468,230	63,967,920	58,977,410	**68,907,980**	
April	56,255,340	65,687,340	**81,233,630**	69,619,100	65,618,770	63,056,840	63,323,620	61,947,620	74,055,850	
May	58,825,640	84,365,390	86,826,340	71,496,380	80,598,590	61,898,200	58,147,240	84,208,690	**92,414,520**	
June	56,770,200	79,985,540	**83,440,990**	64,663,900	65,623,330	56,368,540	53,149,810	73,144,700	65,786,990	
July	56,727,510	**79,346,330**	74,315,690	62,844,790	63,425,030	55,655,000	56,521,710	69,470,550	64,851,480	
Aug.	56,239,370	**70,377,570**	68,986,900	58,459,380	61,486,270	55,316,100	53,293,430	58,550,600		
Sept.	54,109,980	60,404,280	**62,270,300**	58,097,500	56,279,590	53,890,000	49,796,420	67,447,510		
Oct.	55,480,200	**62,403,480**	59,991,850	58,325,780	60,659,850	52,082,800	52,417,120	43,469,300		
Nov.	54,856,880	**58,430,700**	57,184,220	56,215,000	55,065,100	49,812,540	53,815,710	72,434,860		
Dec.	54,607,330	58,617,700	**61,750,390**	56,932,530	59,770,540	51,521,900	52,063,110	67,280,860		
Totals	664,886,960	797,345,357	**819,434,740**	**744,157,830**	**746,009,820**	**682,278,160**	**662,387,240**	**759,960,190**	**484,023,920**	**0**

Yellow indicates record monthly flow as well as record annual flow

KELLOGG TUNNEL ZINC DATA															
	Concentration (mg/L)														
Month	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Jan.		86	81	79	63	70	61	72	57	68	41	46	50	53	68
Feb.		86	91	96	55	72	57	95	58	68	41	68	52	50	85
March		94	116	86	65	68	53	86	58	69	58	81	63	124	88
April		98	121	140	85	80	50	137	176	86	107	92	115	238	118
May		105	231	179	318	136	57	377	215	150	177	87	138	206	93
June		107	182	118	271	143	68	347	164	106	131	78	108	145	161
July		90	144	111	198	117	75	181	136	87	87	75	81	97	100
Aug.		87	112	92	132	94	79	130	110	86	76	66	76	98	
Sept.		84	107	80	107	76	81	132	107	75	66	63	68	75	
Oct.	59	81	100	88	99	75	70	86	70	67	63	54	52	47	
Nov.	66	79	88	88	104	63	57	95	71	70	55	44	52	58	
Dec.	67	62	78	65	76	59	61	88	69	54	49	55	50	60	
average	**64**	**88**	**121**	**102**	**131**	**88**	**64**	**152**	**108**	**82**	**79**	**67**	**75**	**126**	
lime usage		**2.59**	**3.23**	**2.76**	**4.78**	**3.24**	**2.16**	**4.31**	**3.93**	**2.46**	**2.70**	**1.99**	**1.93**	**129.1**	
(tons/day)															
Zinc Conc. Increase/Decrease			**37%**	**-16%**	**29%**	**-33%**	**-27%**	**138%**	**-29%**	**-24%**	**-4%**	**-15%**	**12%**	**68%**	
Lime Usage Increase/Decrease			**25%**	**-15%**	**73%**	**-32%**	**-33%**	**100%**	**-9%**	**-37%**	**10%**	**-26%**	**-3%**	**6589%**	

LIME DEMAND TRACKING

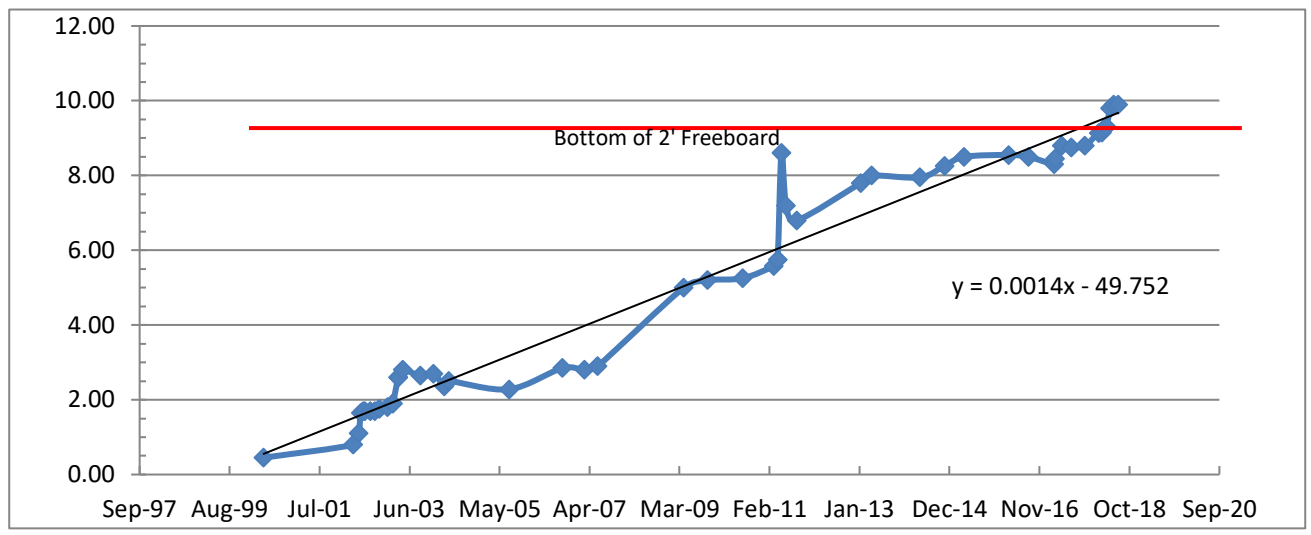
Year	Month	Lime (tons)	KT flow (mg)	Lime Demand (g/L)	
2006	Jan.	70.2	56.0	0.30	
	Feb.	69.9	51.2	0.33	
	March	96.3	56.3	0.41	
	April	107.5	72.0	0.36	
	May	235.4	72.0	0.78	peak
	June	114.6	68.3	0.40	
	July	100.4	64.0	0.38	
	Aug.	118.2	64.1	0.44	
	Sept.	38.4	54.5	0.17	
	Oct.	69.5	57.6	0.29	
	Nov.	71.3	55.2	0.31	
	Dec.	78.2	60.5	0.31	
2007	Jan.	66.0	56.3	0.28	
	Feb.	51.8	50.5	0.25	
	March	81.7	65.4	0.30	
	April	127.9	66.6	0.46	
	May	154.0	63.2	0.58	peak
	June	94.1	57.9	0.39	
	July	107.0	58.3	0.44	
	Aug.	75.8	55.3	0.33	
	Sept.	77.2	50.5	0.37	
	Oct.	62.3	50.1	0.30	
	Nov.	56.9	50.8	0.27	
	Dec.	28.1	52.0	0.13	
2008	Jan.	60.7	53.4	0.27	
	Feb.	50.2	49.3	0.24	
	March	58.0	54.6	0.25	
	April	78.3	61.7	0.30	
	May	629.3	86.7	1.74	peak
	June	388.1	82.6	1.13	
	July	155.6	66.3	0.56	
	Aug.	129.5	65.2	0.48	
	Sept.	97.2	61.1	0.38	
	Oct.	76.4	58.7	0.31	
	Nov.	64.9	52.0	0.30	
	Dec.	73.0	55.7	0.31	
2009	Jan.	70.3	50.9	0.33	
	Feb.	60.3	48.2	0.30	
	March	62.1	61.7	0.24	
	April	88.0	63.1	0.33	
	May	180.9	70.2	0.62	peak
	June	146.3	64.6	0.54	
	July	104.4	61.6	0.41	
	Aug.	94.8	56.4	0.40	
	Sept.	89.2	57.0	0.38	
	Oct.	69.4	55.8	0.30	
	Nov.	70.9	55.0	0.31	
	Dec.	47.4	54.5	0.21	
2010	Jan.	66.7	55.5	0.29	
	Feb.	51.5	50.8	0.24	
	March	49.5	54.7	0.22	
	April	50.0	56.3	0.21	
	May	58.7	58.8	0.24	
	June	58.8	56.8	0.25	
	July	79.7	56.7	0.34	peak
	Aug.	54.7	56.2	0.23	
	Sept.	63.8	54.1	0.28	
	Oct.	54.6	55.4	0.24	
	Nov.	54.1	55.8	0.23	
	Dec.	64.5	54.6	0.28	
2011	Jan.	77.1	61.7	0.30	
	Feb.	69.8	54.6	0.31	
	March	94.7	61.4	0.37	
	April	119.6	65.6	0.44	
	May	433.0	84.4	1.23	peak
	June	328.4	80.0	0.98	
	July	159.9	79.3	0.48	
	Aug.	120.8	70.3	0.41	
	Sept.	92.4	60.4	0.37	
	Oct.	97.8	62.4	0.38	
	Nov.	66.8	58.4	0.27	
	Dec.	65.2	58.6	0.27	
2012	Jan.	74.9	58.4	0.31	
	Feb.	56.8	57.7	0.24	
	March	85.6	67.2	0.31	
	April	194.8	81.2	0.57	
	May	261.6	86.8	0.72	peak
	June	179.9	83.4	0.52	

LIME DEMAND TRACKING

Year	Month	Lime (tons)	KT flow (mg)	Lime Demand (g/L)	
	July	140.8	74.3	0.45	
	Aug.	118.0	68.9	0.41	
	Sept.	95.6	62.2	0.37	
	Oct.	89.0	60.0	0.36	
	Nov.	73.3	57.2	0.31	
	Dec.	74.8	61.8	0.29	
2013	Jan.	57.2	61.9	0.22	
	Feb.	64.5	59.4	0.26	
	March	71.7	66.2	0.26	
	April	96.9	69.6	0.33	
	May	126.2	71.5	0.42	peak
	June	94.1	64.6	0.35	
	July	91.2	62.8	0.35	
	Aug.	89.2	58.4	0.37	
	Sept.	65.2	58.0	0.27	
	Oct.	59.3	58.3	0.24	
	Nov.	50.9	56.2	0.22	
	Dec.	49.9	56.9	0.21	
2014	Jan.	38.7	57.4	0.16	
	Feb.	35.8	54.6	0.16	
	March	73.1	65.3	0.27	
	April	101.1	65.6	0.37	
	May	208.3	80.6	0.62	peak
	June	127.4	65.6	0.47	
	July	87.5	63.4	0.33	
	Aug.	81.1	61.5	0.32	
	Sept.	63.7	56.3	0.27	
	Oct.	53.1	60.6	0.21	
	Nov.	62.8	55.0	0.27	
	Dec.	54.6	59.7	0.22	
2015	Jan.	51.7	58.4	0.21	
	Feb.	61.0	59.7	0.24	
	March	83.1	64.4	0.31	
	April	94.8	63.0	0.36	peak
	May	73.3	62.0	0.28	
	June	69.7	65.3	0.26	
	July	83.6	55.6	0.36	
	Aug.	58.4	55.3	0.25	
	Sept.	55.3	53.9	0.25	
	Oct.	56.8	52.0	0.26	
	Nov.	46.3	49.8	0.22	
	Dec.	43.7	51.5	0.20	
2016	Jan.	24.2	52.2	0.11	
	Feb.	33.4	53.6	0.15	
	March	66.0	64.0	0.25	
	April	86.1	63.3	0.33	
	May	96.9	58.1	0.40	peak
	June	69.9	53.1	0.32	
	July	68.2	56.5	0.29	
	Aug.	53.7	53.2	0.24	
	Sept.	53.6	49.8	0.26	
	Oct.	49.8	52.4	0.23	
	Nov.	48.7	53.8	0.22	
	Dec.	48.3	52.0	0.22	
2017	Jan.	51.7	49.3	0.25	
	Feb.	46.9	53.7	0.21	
	March	140.0	59.0	0.57	
	April	174.5	61.9	0.68	
	May	246.6	84.2	0.70	peak
	June	143.5	73.1	0.47	
	July	141.6	69.4	0.49	
	Aug.	87.6	58.5	0.36	
	Sept.	100.8	67.4	0.36	
	Oct.	60.8	43.5	0.34	
	Nov.	91.0	72.4	0.30	
	Dec.	76.3	67.3	0.27	
2018	Jan.	63.6	56.5	0.27	
	Feb.	84.2	59.6	0.34	
	March	101.5	68.9	0.35	
	April	129.1	74.1	0.42	
	May	349.7	92.4	0.91	peak
	June	130.4	65.8	0.47	
	July	141.6	64.8	0.52	

Bunker Hill Sludge Pond
Sludge Staff Gauge Reading Summary

Date	Sludge Level (feet)	Estimated Sludge Elevation	Estimated Remaining Height to Road (feet)	
05/19/00	0.45			
04/16/02	0.80			
05/28/02	1.10			
06/13/02	1.65			
07/01/02	1.70			
07/16/02	1.70			
08/27/02	1.70			
10/01/02	1.70			
11/06/02	1.75			
01/06/03	1.80			
02/19/03	1.90			
02/19/03	1.90			
03/31/03	2.60			
04/01/03	2.60			
05/07/03	2.80			
09/19/03	2.65			
01/01/04	2.70			
03/22/04	2.36			
04/29/04	2.50	2311	11.0	
08/09/05	2.28	2310.8	11.2	
09/30/06	2.85	2311.4	10.7	
03/20/07	2.80	2311.3	10.7	
6/30/2007	2.90	2311.4	10.6	
4/30/2009	5.00	2313.5	8.50	
10/31/2009	5.20	2313.7	8.30	
7/31/2010	5.25	2313.8	8.25	
3/31/2011	5.58	2314.1	7.92	
4/30/2011	5.75	2314.3	7.75	
5/30/2011	8.60	2317.1	4.90	
7/5/2011	7.20	2315.7	6.30	
9/26/2011	6.80	2315.3	6.70	
2/4/2013	7.80	2316.3	5.70	
4/30/2013	8.00	2316.5	5.50	
5/12/2014	7.95	2316.5	5.55	
11/20/2014	8.26	2316.8	5.24	
4/20/2015	8.50	2317.0	5.00	
4/1/2016	8.55	2317.1	4.95	
9/1/2016	8.50	2317.0	5.00	
3/20/2017	8.30	2316.8	5.20	
3/28/2017	8.45	2317.0	5.05	
5/18/2017	8.80	2317.3	4.70	
7/31/2017	8.75	2317.3	4.75	
11/15/2017	8.80	2317.3	4.70	
3/1/2018	9.14	2317.6	4.36	03-08-18 Polishing Pond Cleanout to CIA
3/27/2018	9.15	2317.7	7.35	Wood Env. Elevation of 2325
4/9/2018	9.25	2320.8	4.25	
5/1/2018	9.30	2320.8	4.20	
5/31/2018	9.80	2321.3	3.70	
6/27/2018	9.90	2321.4	3.60	
7/31/2018	9.90	2321.4	3.60	
6586	**9.45**	**Total Change, Days and Feet**		
Note 3	0.52	Average Rise Per Year (Includes Lined Pond Cleanout), feet		
	3.60	Estimated average remaining total height to perimeter road, feet		
	2.0	Assumed desired end-of-life freeboard, feet		
	1.6	Estimated available storage height, feet		
	3.05	**Estimated Remaining Life (years)**		
	8/19/2021			



Notes:
1) Pond perimeter road at SE pond corner elevation 2325.0
2) Pond area is approximately 220,000 square feet (not used in calculations)
3) Average Rise Per Year conservatively includes Lined Pond muck because some portion would have made CTP sludge if it had not precipitated in

R QUANTITIES FROM CLARIFIER

Date	Loads	Gallons
1-Jul	0	0
2-Jul	10	40,000
3-Jul	6	24,000
4-Jul	0	0
5-Jul	10	40,000
6-Jul	13	52,000
7-Jul	9	36,000
8-Jul	0	0
9-Jul	10	40,000
10-Jul	13	52,000
11-Jul	7	28,000
12-Jul	7	28,000
13-Jul	4	16,000
14-Jul	4	16,000
15-Jul	0	0
16-Jul	3	12,000
17-Jul	8	32,000
18-Jul	8	32,000
19-Jul	11	44,000
20-Jul	8	32,000
21-Jul	11	44,000
22-Jul	0	0
23-Jul	15	60,000
24-Jul	14	56,000
25-Jul	12	48,000
26-Jul	13	52,000
27-Jul	12	48,000
28-Jul	6	24,000
29-Jul	10	40,000
30-Jul	10	40,000
31-Jul	10	40,000
Totals:	***214***	***976,000***

Using a 4,000 Gallon Water Truck

CTP Mine Water Line Open Channel Inspection Form

Note: This form should be utilized weekly during the regular channel cleanout.
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: July 05, 2018 Inspected By: Steve Brunner, Gary Coast

Item Inspected	Condition	Comments
Channel Sections and Joints	**Good** / Poor	Check for cracks Ok
Channel Inlet Connection @ KT	**Good** / Poor	Check for cracks Ok
Channel Outlet/Pipeline Inlet	**Good** / Poor	Check for cracks Ok
Channel Bottom (during low flows)	**Good** / Poor	Concrete walls show signs of pitting/corrosion
Bottom Joints (during low flows)	**Good** / Poor	Ok
Trash Rack Assembly Rail Units	**Good** / Poor	Check for corrosion and bolt tightness Ok
Trash Racks	**Good** / Poor	Small amount of wood debris was removed
Parshall Flume	**Good** / Poor	Check fiberglass and joint connections Ok Flume staff gauge needs replaced

General Comments:

The Kellogg Tunnel flow at this time is 2.58 mgd (1790 gpm), pH at this time is 2.90.

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

Operators removed a small amount of wood debris from the flume area during this cleaning event.

CTP operators had no contact with any mine personnel during this cleaning event.

CTP Mine Water Line Open Channel Inspection Form

Note: This form should be utilized weekly during the regular channel cleanout.
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: July 12, 2018 Inspected By: Steve Brunner, Gary Coast

Item Inspected	Condition	Comments
Channel Sections and Joints	**Good** / Poor	Check for cracks Ok
Channel Inlet Connection @ KT	**Good** / Poor	Check for cracks Ok
Channel Outlet/Pipeline Inlet	**Good** / Poor	Check for cracks Ok
Channel Bottom (during low flows)	**Good** / Poor	Concrete walls show signs of pitting/corrosion
Bottom Joints (during low flows)	**Good** / Poor	Ok
Trash Rack Assembly Rail Units	**Good** / Poor	Check for corrosion and bolt tightness Ok
Trash Racks	**Good** / Poor	Wood debris was removed
Parshall Flume	**Good** / Poor	Check fiberglass and joint connections Ok Flume staff gauge needs replaced

General Comments:

The Kellogg Tunnel flow at this time is 1.22 mgd (850 gpm), pH at this time is 2.79.

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

Operators removed a small amount of wood debris from the trash racks during this cleaning event.

CTP operators had no contact with any mine personnel during this cleaning event.

CTP Mine Water Line Open Channel Inspection Form

Note: This form should be utilized weekly during the regular channel cleanout.
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: July 19, 2018 Inspected By: Steve Brunner, Gary Coast

Item Inspected	Condition	Comments
Channel Sections and Joints	**Good** / Poor	Check for cracks Ok
Channel Inlet Connection @ KT	**Good** / Poor	Check for cracks Ok
Channel Outlet/Pipeline Inlet	**Good** / Poor	Check for cracks Ok
Channel Bottom (during low flows)	**Good** / Poor	Concrete walls show signs of pitting/corrosion
Bottom Joints (during low flows)	**Good** / Poor	Ok
Trash Rack Assembly Rail Units	**Good** / Poor	Check for corrosion and bolt tightness Ok
Trash Racks	**Good** / Poor	Wood debris was removed from both racks
Parshall Flume	**Good** / Poor	Check fiberglass and joint connections Ok Flume staff gauge needs replaced

General Comments:

The Kellogg Tunnel flow at this time is 1.19 mgd (826 gpm), pH at this time is 2.81.

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

Operators removed sand debris from the flume area during this cleaning event.

Mine personnel stated the mine pool pump will remain off until Monday morning July 23rd.

CTP Mine Water Line Open Channel Inspection Form

Note: This form should be utilized weekly during the regular channel cleanout.
Results will be include with the Daily Quality Control Report and monthly DMR.

Date: July 26, 2018 Inspected By: Steve Brunner, Gary Coast

Item Inspected	Condition	Comments
Channel Sections and Joints	**Good** / Poor	Check for cracks Ok
Channel Inlet Connection @ KT	**Good** / Poor	Check for cracks Ok
Channel Outlet/Pipeline Inlet	**Good** / Poor	Check for cracks Ok
Channel Bottom (during low flows)	**Good** / Poor	Concrete walls show signs of pitting/corrosion
Bottom Joints (during low flows)	**Good** / Poor	Ok
Trash Rack Assembly Rail Units	**Good** / Poor	Check for corrosion and bolt tightness Ok
Trash Racks	**Good** / Poor	No debris ok
Parshall Flume	**Good** / Poor	Check fiberglass and joint connections Ok Flume staff gauge needs replaced

General Comments:

The Kellogg Tunnel flow at this time is 2.51 mgd (1740 gpm), pH at this time is 2.91.

The concrete flume walls are beginning to deteriorate approximately 6" up from the flume bottom.

The submerged area of the concrete is pitting and is now approximately 1/2" indented.

Alternate hand held staff gauge was used to verify flume staff gauge and flow meter readings.

Ultrasonic flow meter calibration was correct, no adjustments were needed.

Operators removed 5 gallons of sand and rock debris from the flume during this cleaning event.